

Amendment and Response

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Serial No.: 09/845,946

Confirmation No.: 3318

Filed: 30 April 2001

For: A COATED FILM LAMINATE HAVING AN IONIC SURFACE

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. **(Currently Amended)** A laminate ~~having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area, and~~ comprising:

a substrate comprising a relaxed oriented polymeric film or a relaxed elastomeric material; and

a polymeric coating disposed on the substrate over substantially all of the topographical surface area of the laminate and comprising an ionic surface and one or more layers;

wherein at least one layer comprises at least one polymer made from 2-vinylpyridine, 3-vinylpyridine, 4-vinylpyridine, (3-acrylamidopropyl)trimethylammonium chloride, 2-diethylaminoethyl acrylate, 2-diethylaminoethyl methacrylate, 3-dimethylaminopropyl acrylate, 3-dimethylaminopropyl methacrylate, 2-aminoethyl methacrylate, dimethylaminoethyl acrylate, dimethylaminoethyl methacrylate, 2-acryloxyethyltrimethylammonium chloride, diallyldimethylammonium chloride, 2-methacryloxyethyltrimethylammonium chloride, 3-methacryloxy-2-hydroxypropyltrimethylammonium chloride, 3-aminopropylmethacrylamide, dimethylaminoethyl methacrylamide, dimethylaminopropyl acrylamide, 4-vinylbenzyltrimethylammonium chloride, 4-vinyl-1-methylpyridinium bromide, lysine, allylamine, vinylamine, nylons, chitosan, or any combination thereof, and

wherein the laminate has a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area.

2. **(Original)** The laminate of claim 1 further comprising a mask layer between the substrate and the polymeric coating.

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3. **(Original)** The laminate of claim 1 further comprising a mask layer in direct contact with the substrate.
4. **(Original)** The laminate of claim 1 wherein the coating has a thickness from about 100 Å to about 50 µm.
5. **(Original)** The laminate of claim 4 wherein the coating has a thickness from about 100 Å to about 30 µm.
6. **(Original)** The laminate of claim 5 wherein the coating has a thickness from about 100 Å to about 20 µm.
7. **(Original)** The method of claim 1 wherein at least one layer comprises an amphoteric polymer.
8. **(Previously Presented)** A composite comprising:
the laminate of claim 1; and
one or more sample molecules affixed to the polymeric coating.
9. **(Previously Presented)** The composite of claim 8 wherein at least one sample molecule is a polypeptide, a polynucleotide, a polysaccharide, or any combination thereof.
10. **(Withdrawn - Currently Amended)** A laminate ~~having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area, and comprising:~~
a substrate comprising a relaxed oriented polymeric film or a relaxed elastomeric

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material; and

a polymeric coating disposed on the substrate over substantially all of the topographical surface area of the laminate and comprising an ionic surface and one or more layers; wherein at least one layer comprises at least one polymer made from acrylic acid, methacrylic acid, maleic acid, fumaric acid, itaconic acid, vinylbenzoic acid, N-acryloylamino acid, N-methacryloylamino acid, 2-carboxyethyl acrylate, vinyl phosphoric acid, vinyl phosphonic acid, monoacryloxyethyl phosphate, sulfoethyl methacrylate, sulfopropyl methacrylate, 3-sulfopropyl dimethyl-3-methacrylamidopropyl ammonium inner salt, styrenesulfonic acid, 2-acrylamido-2-methyl-1-propanesulfonic acid, a sulfonated polysaccharide, a carboxylated polysaccharide, or any combination thereof, and

wherein the laminate has a projected surface area and a topographical surface area
wherein the topographical surface area is greater than the projected surface area.

11. **(Withdrawn)** The laminate of claim 10 wherein the sulfonated polysaccharide is heparin, dermatan sulfate, or dextran sulfate.

12. **(Withdrawn)** The laminate of claim 10 wherein the carboxylated polysaccharide is iduronic acid, carboxymethylcellulose, or alginic acid.

13. **(Withdrawn - Currently Amended)** A ~~composition~~ composite comprising:
the laminate of claim 10; and
one or more sample molecules affixed to the polymeric coating.

14. **(Withdrawn - Currently Amended)** The ~~composition~~ composite of claim 13
wherein at least one sample molecule
is a polypeptide, a polynucleotide, a polysaccharide, or any combination thereof.

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15. **(Withdrawn - Currently Amended)** A laminate ~~having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area, and comprising:~~

a substrate comprising a relaxed oriented polymeric film or a relaxed elastomeric material;

a hydrogel disposed on the substrate; and

a coating disposed on the hydrogel over substantially all of the topographical surface area of the laminate, the coating comprising an anionic surface and one or more layers, and

wherein the laminate has a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area.

16. **(Withdrawn)** The laminate of claim 15 wherein at least one layer comprises polymers made from acrylic acid, methacrylic acid, maleic acid, fumaric acid, itaconic acid, vinylbenzoic acid, N-acryloylamino acid, N-methacryloylamino acid, 2-carboxyethyl acrylate, vinyl phosphoric acid, vinyl phosphonic acid, monoacryloxyethyl phosphate, sulfoethyl methacrylate, sulfopropyl methacrylate, 3-sulfopropyl dimethyl-3-methacrylamidopropyl ammonium inner salt, styrenesulfonic acid, 2-acrylamido-2-methyl-1-propanesulfonic acid, carboxylated polyvinylchloride, a sulfonated polysaccharide, a carboxylated polysaccharide, or any combination thereof.

17. **(Withdrawn)** The laminate of claim 16 wherein the sulfonated polysaccharide is heparin, dermatan sulfate, or dextran sulfate.

18. **(Withdrawn)** The laminate of claim 16 wherein the carboxylated polysaccharide is iduronic acid, carboxymethylcellulose, or alginic acid.

19. **(Withdrawn)** The laminate of claim 15 wherein the hydrogel comprises one or more

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linking agents.

20. (Withdrawn) The laminate of claim 19 wherein the linking agents comprise azlactone copolymers.

21. (Withdrawn - Currently Amended) A ~~composition~~ composite comprising:
the laminate of claim 14; and
one or more sample molecules affixed to the coating.

22. (Withdrawn - Currently Amended) The ~~composition~~ composite of claim 21 wherein at least one sample molecule is a polypeptide, a polynucleotide, a polysaccharide, or any combination thereof.

23. (Currently Amended) A laminate ~~having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area, and~~ comprising:

a substrate comprising a relaxed oriented polymeric film or a relaxed elastomeric material;

a hydrogel disposed on the substrate; and

a coating disposed on the hydrogel over substantially all of the topographical surface area of the laminate, the coating comprising a cationic surface and one or more layers;
wherein at least one layer comprises at least one polymer made from 2-vinylpyridine, 3-vinylpyridine, 4-vinylpyridine, (3-acrylamidopropyl)trimethylammonium chloride, 2-diethylaminoethyl acrylate, 2-diethylaminoethyl methacrylate, 3-dimethylaminopropyl acrylate, 3-dimethylaminopropyl methacrylate, 2-aminoethyl methacrylate, dimethylaminoethyl acrylate, dimethylaminoethyl methacrylate, 2-acryloxyethyltrimethylammonium chloride, diallyldimethylammonium chloride, 2-methacryloxyethyltrimethylammonium chloride, 3-

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methacryloxy-2-hydroxypropyltrimethylammonium chloride, 3-aminopropylmethacrylamide, dimethylaminoethyl methacrylamide, dimethylaminopropyl acrylamide, 4-vinylbenzyltrimethylammonium chloride, 4-vinyl-1-methylpyridinium bromide, lysine, allylamine, vinylamine, nylons, chitosan, or any combination thereof, and

wherein the laminate has a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area.

24. (Original) The laminate of claim 23 wherein the hydrogel comprises one or more linking agents.

25. (Currently Amended) A The laminate of claim 24 having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area, and comprising:

a substrate comprising a polymeric film;

a hydrogel disposed on the substrate, wherein the hydrogel comprises one or more linking agents, and wherein the linking agents comprise azlactone copolymers; and

a coating disposed on the hydrogel over substantially all of the topographical surface area of the laminate, the coating comprising a cationic surface and one or more layers;

wherein at least one layer comprises at least one polymer made from 2-vinylpyridine, 3-vinylpyridine, 4-vinylpyridine, (3-acrylamidopropyl)trimethylammonium chloride, 2-diethylaminoethyl acrylate, 2-diethylaminoethyl methacrylate, 3-dimethylaminopropyl acrylate, 3-dimethylaminopropyl methacrylate, 2-aminoethyl methacrylate, dimethylaminoethyl acrylate, dimethylaminoethyl methacrylate, 2-acryloxyethyltrimethylammonium chloride, diallyldimethylammonium chloride, 2-methacryloxyethyltrimethylammonium chloride, 3-methacryloxy-2-hydroxypropyltrimethylammonium chloride, 3-aminopropylmethacrylamide, dimethylaminoethyl methacrylamide, dimethylaminopropyl acrylamide, 4-vinylbenzyltrimethylammonium chloride, 4-vinyl-1-methylpyridinium bromide, lysine,

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allylamine, vinylamine, nylons, chitosan, or any combination thereof.

26. (Previously Presented) A composite comprising:
the laminate of claim 23; and
one or more sample molecules affixed to the coating.

27. (Previously Presented) The composite of claim 26 wherein at least one sample molecule is a polypeptide, a polynucleotide, a polysaccharide, or any combination thereof.

28. (Currently Amended) A laminate ~~having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area, and~~ comprising:

a substrate comprising a relaxed oriented polymeric film or a relaxed elastomeric material;

a hydrogel comprising at least one linking agent disposed on the substrate; and
one or more bifunctional ionic molecules covalently linked to at least one linking agent, and wherein the laminate has a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area.

29. (Original) The laminate of claim 28 wherein at least one bifunctional ionic molecule is an aminocarboxylic acid, an aminosulfonic acid, an aminophosphonic acid, an aminophosphoric acid, or a polyamine.

30. (Previously Presented) A composite comprising:
the laminate of claim 28; and
one or more sample molecules affixed to the one or more bifunctional ionic molecules.

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31. (Previously Presented) The composite of claim 30 wherein at least one sample molecule is a polypeptide, a polynucleotide, a polysaccharide, or any combination thereof.

32. (Currently Amended) A laminate ~~having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area~~, and comprising:

a substrate comprising a relaxed oriented polymeric film or a relaxed elastomeric material;

a hydrogel disposed on the substrate and comprising one or more hydrolyzed azlactone moieties, and

wherein the laminate has a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area.

33. (Previously Presented) A composite comprising:

the laminate of claim 32; and

one or more sample molecules affixed to one or more hydrolyzed azlactone moieties.

34. (Previously Presented) The composite of claim 29 wherein at least one sample molecule is a polypeptide, a polynucleotide, a polysaccharide, or any combination thereof.

35. (New) A laminate having a projected surface area and a topographical surface area wherein the topographical surface area is greater than the projected surface area, and comprising:

a substrate comprising a relaxed oriented film or a relaxed elastomeric material; and

a polymeric coating disposed on the substrate over substantially all of the topographical surface area of the laminate and comprising an ionic surface and one or more layers;

wherein at least one layer comprises at least one polymer made from 2-vinylpyridine, 3-

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vinylpyridine, 4-vinylpyridine, (3-acrylamidopropyl)trimethylammonium chloride, 2-diethylaminoethyl acrylate, 2-diethylaminoethyl methacrylate, 3-dimethylaminopropyl acrylate, 3-dimethylaminopropyl methacrylate, 2-aminoethyl methacrylate, dimethylaminoethyl acrylate, dimethylaminoethyl methacrylate, 2-acryloxyethyltrimethylammonium chloride, diallyldimethylammonium chloride, 2-methacryloxyethyltrimethylammonium chloride, 3-methacryloxy-2-hydroxypropyltrimethylammonium chloride, 3-aminopropylmethacrylamide, dimethylaminoethyl methacrylamide, dimethylaminopropyl acrylamide, 4-vinyl-1-methylpyridinium bromide, lysine, allylamine, vinylamine, nylons, chitosan, or any combination thereof.

36. (New) The laminate of claim 1 wherein laminate comprises an undulated surface.

37. (New) The laminate of claim 1 wherein the topographical surface area is at least about five times greater than the projected surface area.

38. (New) The laminate of claim 1 wherein the topographical surface area is at least fifteen times greater than the projected surface area.